GEMINI 19" - USER MANUAL

Rugged 1U Rack Mount Display

Installation, Setup, Operations, Maintenance, & Troubleshooting

User Manual
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FIELD-READY FLEET-READY FLIGHT-READY

MISSION-READY

RUGGEDIZED MILITARY TECHNOLOGY

"Next Generation Mission-Ready Computing"

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REGULATORY INFORMATION

WARNING

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. ALSO, DO NOT USE THIS UNIT'S POLARIZED AC PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLETS UNLESS ALL THREE PRONGS CAN BE FULLY INSERTED

1. Use the power and video cables supplied with the product to help prevent interference with radio and television reception. The use of cables and adapters may cause interference with electronic equipment in the vicinity of this unit.

2. This equipment has been designed to meet severe conditions in military environments as specified in MIL-STD-810G, MIL-STD-461F and DO-160F.

3. This equipment is designed to meet the limits for Class A digital devices imposed by Part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference when equipment is operating in commercial environments. This equipment generates, uses and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

CAUTION

RISK OF ELECTRIC SHOCK - DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK OF UNIT). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.

This symbol warns the user that insulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any part inside this unit.

This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore it should be read carefully in order to avoid any problems.

4. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Z Microsystems could void user's authority to operate the equipment.

OPERATION WARNING

This product was designed to operate under current VESA Specifications. If your operating equipment is dated or uses something other than current VESA Specifications, you MUST configure your graphics adapter so that the pixel clock rate DOES NOT exceed 162 MHz.

Failure to acknowledge may cause irreparable damage to the unit.

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1.0 PRODUCT OVERVIEW

This section will provide information and assistance with the following topics:

- About This Manual
- Visual Notifications
- Product Overview

1.1 ABOUT THIS MANUAL

This user’s manual provides information about operation, features, installation, connections, troubleshooting, product replacement, limited warranty, and other important details relevant to the Gemini. We recommend you read this manual carefully and follow the instructions in the installation chapter for verification of system functions and control settings.

This manual and others, as well as other resources are also available on the Z Microsystems website at ***www.zmicro.com***. For further assistance please visit the Troubleshooting & Frequently Asked Questions section within the manual, or refer to the section dedicated to Customer Support.

For added convenience and safety, you will find bookmarks, embedded visual cues for quick tips, warnings, new sections, and safety precautions. These are intended for quick supplemental reference and added ease in the installation and operation of the Gemini.

Please refer to the included Z Microsystems Gemini Quick Start Guide for help with setup and operation of your Gemini Station.

SAFETY PRECAUTIONS

DANGER: To avoid shock hazard:

- Do not remove the covers around the Gemini.
- Do not connect or disconnect the Gemini during an electrical storm.
- The power cord plug must be connected to a properly wired and grounded power outlet.
- Any equipment to which the Gemini will be attached must also be connected to properly wired and grounded power outlets.

1.2 VISUAL NOTIFICATIONS

WARNINGS AND SAFETY PRECAUTIONS

NOTES AND PREPARATIONS

Necessary Tools

Necessary Hardware

Additional assistance for the Gemini, or other form factors can be found on the Z Microsystem’s website along with highly customizable integration options for a wide range of platforms and applications.

1.3 PRODUCT DESCRIPTION

GEMINI 19” RACK DISPLAY

The Gemini 19” is a rugged, ultra-slim, stowable rack-mount LCD Display with a native resolution of 1280 x 1024. The Gemini can support resolutions up to 1920 x 1200 with scaling from the onboard video controller.

The ultra-slim Gemini fits in 19” RETMA racks and transit cases. It is only 1.75” (1U) in height and 25” deep. Dual locks hold the Gemini firmly in the storage position, and secure dual quick release levers lock and unlock the Gemini allowing it to slide out. Gemini models can be configured for manipulation of the screen to be oriented up or down

The Gemini 19” rugged display uses active-matrix technology to provide exceptional color and clarity, and plugs-and-plays with any workstation, PC, or X Terminal.

The Gemini is manufactured from lightweight aircraft grade aluminum to provide exceptional strength and durability. It is an effective, stowable and space-saving display option to maximize utility and server space in your rack configuration.

HIGHLIGHTS

- 19” 1280 x 1024 LCD Display
- Durable CNC machined-aluminum
- 1U display can orient up or down
- Rugged dual spring-loaded locks for secure stowing
- Ultra-secure, locking power, video, and communication MIL-Round connectors
- On screen display menus for operator management and custom configuration
- Field replaceable peripheral components

2.0 INSTALLATION & SETUP

This section will provide information and assistance with the following topics:

- Parts included with Gemini Shipment
- Gemini Cable Connections Outline
- Gemini Setup

WARNING

Using assembly hardware that does not match specifications may damage internal components.

2.1 SHIPMENT CONTENTS

Ensure all of the following parts are included in the package upon arrival. Verify all parts have not been damaged during shipment. If any of the parts are missing or damaged, immediately contact Z Microsystems Customer Service at **858-831-7040**.

- Gemini 19” Display
- Hardware Kit
- Z Microsystems CD/DVD w/ User Manual, Warranty Info, Product Drivers, and other utilities
- Additional cables as applicable per shipment specifications
    - (1) AC/DC Power Cable - MIL-C-5015 (OR) MIL-38999
    - (1) Channel 1 Video Cable - DVI-I (OR) DVI-I MIL-38999
    - (2) Channel 2 Video Cable - DVI-I (OR) DVI-I MIL-38999 (OR) NTSC w/ RS-170 MIL-38999
    - (1) Host USB Cable - USB Type B (OR) USB MIL-38999

SETUP NOTES

For the fastest and easiest installation of the Gemini, follow the Installation Guide provided with your shipment.

2.2 INSTALLATION

Required Tools for Installation

- #2 Phillips Head Screwdriver
- 5/16” Allen Wrench
- Eight 10-32 Phillips Screws

Installation and hardware specifications may vary between configurations and models. For more information not provided in this user manual refer the Quick Start Guide provided with your product shipment, or contact **zdoc@zmicro.com** for more specific installation details.

The Gemini ERM chassis is designed and engineered to be rack-stowable and fit a standard 19” RETMA rack. Follow the instructions provided in the following installation section.

The Gemini 19” Rack Display is designed for implementation in a variety of applications. It can be mounted for use in a pre-existing operating station, recessed into a workstation or otherwise fitted to meet your needs. For non-standard installation methods, different hardware is required to implement the Gemini. If your configuration requires that the Gemini be mounted using custom rails or parts, please contact your Z Microsystems Sales Representative for options.

For more information about rail kits or mounting configurations please contact Z Microsystems Customer Service at **858-831-7040**, or email us at **techsupport@zmicro.com**.

PREPARATIONS

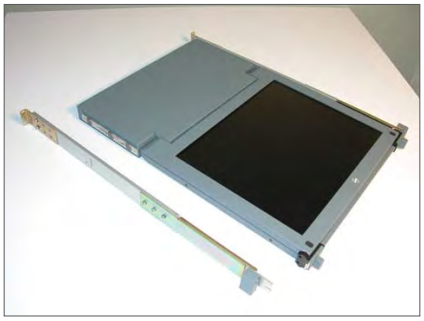
In preparation to setting up the Gemini, turn off the electrical power to computers and all electronic devices that will connect to the unit.

TIPS

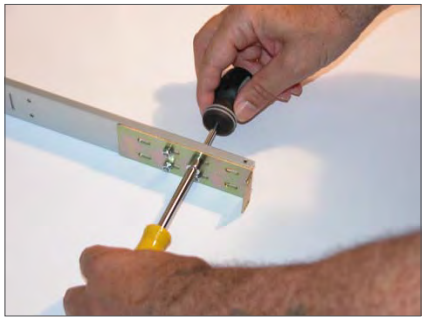
TRANSPORTATION TIP: Remember to save the unit’s original shipping materials. It may be needed to transport the unit or perform maintenance on it, at a later date.

INSTALLATION FOR THE GEMINI 19”

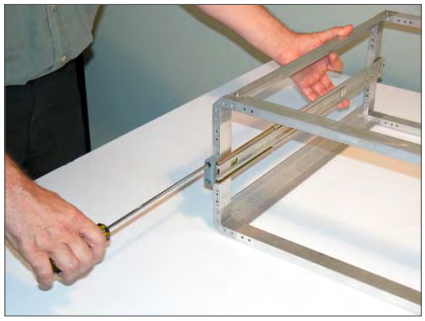
Use the following installation process to guide you through setup of the Gemini 19” Rack Display. The installation process details the assembly and installation of the Gemini Display with standard rail mount slides. Installation may vary for installation with a custom configuration.



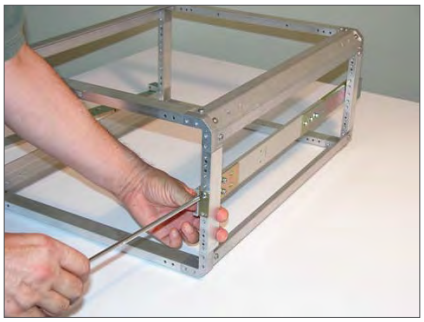
1. The slide cabinate and intermediate member should now be separated from the slide chassis on the Gemini. Repeat to remove the right slide assembly.



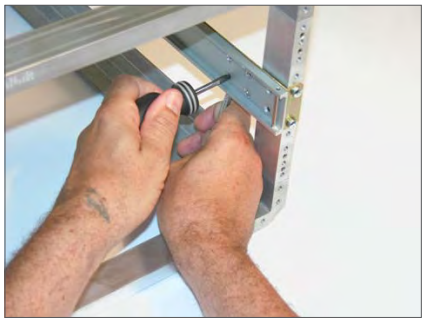
2. The slides come pre-assembled to fit a 24” - 30” deep rack. Set the adapter bracket to fit your rack. Loosen the screws 1/4 turn on the rack adapter bracket



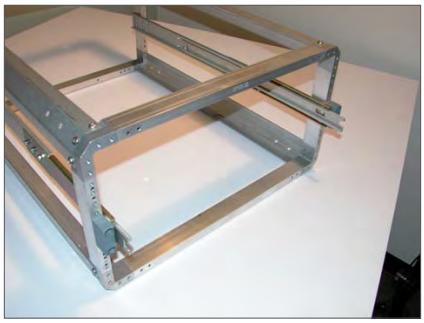
3. To attach the slides to the front of the RETMA rails use two 10-32 Phillips head screws on each side to secure the dual lock mounting blocks on the front.



4. Similarly, use two 10-32 Phillips head screws on the rear. Be sure to press the slide cabinet flat against the RETMA rail as you tighten the screws.



5. Using a screwdriver and 5/16 allen wrench, be sure to tighten the screws holding the slide extension bracket to slide the cabinet rails.



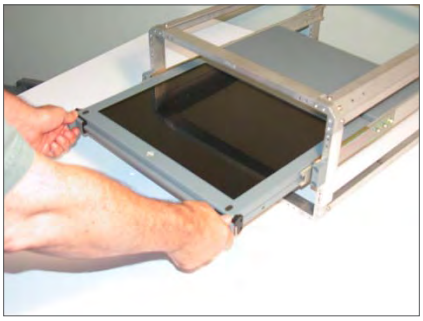
6. Pull out both slide intermediate members.

7. Hold the Gemini with the front toward you, as horizontal as possible. Guide the slide chassis on the Gemini into the intermediate member on the left, and then the right.

8. Gently slide the Gemini into the rack until it stops at the locking catches.

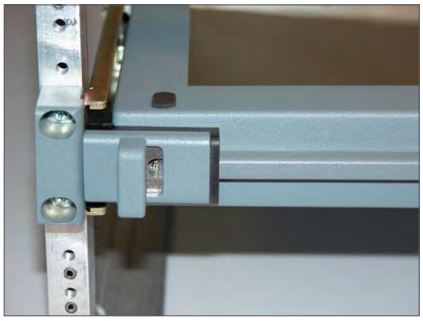
9. Simultaneouslyl press in the set of catches on both outside rails.

INSTALLATION FOR THE GEMINI 19” (CONTINUED...)

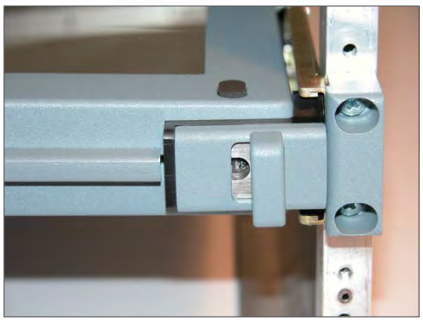


10. Hold the Gemini horizontal and slide it in until the face of it is flush with the front of the rails.

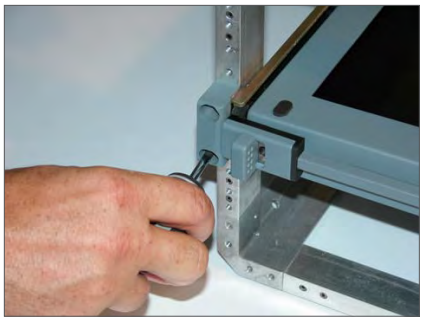
11. Secure the Gemini by first pushing inward on the right and left locking mechanisms and push the Gemini further into the rack.



12. Release the spring-loaded locks and at this point they should lock the Gemini in the stow position. Check the left lock first.



13. Then check the right lock. Both left and right locks should be flush and aligned with the rack.



14. Make sure that the screws are fully tightened on the front and back of the rack slides.

2.3 CONNECTIONS

These are the connections on the rear panel of a standard Gemini configuration. This section covers cabling requirements, and the process of connecting the Gemini for Operation.

Connect the appropriate cables and peripheral devices on the rear panel, as instructed and described herein:

OPERATION WARNING
Max Pixel Clock Rate: 162 MHz

WARNING

If using a dated system that does not operate by current VESA specifications - Ensure that your graphics adapter limits the pixel clock rate to 162 MHz.

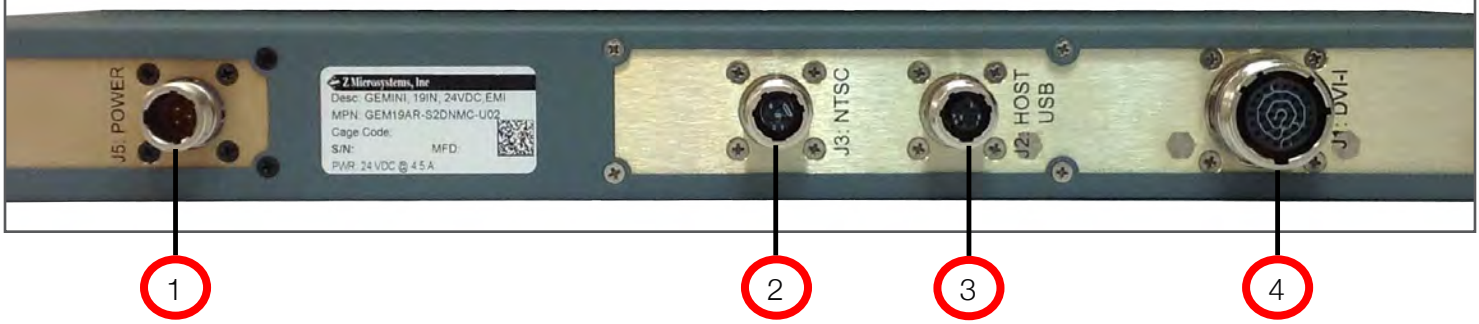
ATTENTION

This Section illustrates the proper Connections process utilizing a non-standard configuration with rugged round locking connectors (MIL-38999)

REQUIRED CABLES

- (1) AC/DC Power Cable - MIL-C-5015 (OR) MIL-38999
- (1) Channel 1 Video Cable - DVI-I (OR) DVI-I MIL-38999
- (2) Channel 2 Video Cable - DVI-I (OR) DVI-I MIL-38999 (OR) NTSC w/ RS-170 MIL-38999
- (1) Host USB Cable - USB Type B (OR) USB MIL-38999

MIL-38999 Version shown here



REAR CONNECTIONS KEY

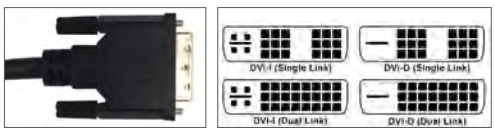
#	Label	Connector Type
1	J5: POWER	AC/DC MIL-C-5015 (OR) AC/DC MIL-38999
2	J3: CHANNEL 2 / PIP Channel	DVI-I Video Cable (OR) NTSC w/ RS-170 MIL-38999
3	J2: HOST USB	USB (OR) USB MIL-38999
4	J1: CHANNEL 1 / Main Channel	DVI-I Video Cable (OR) DVI-I MIL-38999

CONNECTIONS CHART

Standard

MIL-C-5015 Round Locking Connector

DVI Connector (DVI-I & DVI-D Accepted)



BNC Connector (Custom Configurations)

USB Type B Connector

MIL-38999

MIL-38999 Round Locking Connectors

(For Custom Configurations)

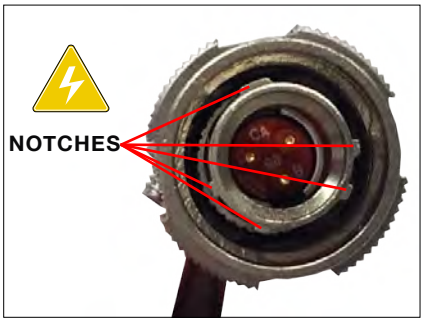
CONNECTING THE GEMINI

This section will guide you through the connections portion of setup for the Gemini. Before operating the unit we will need to connect a power cable (AC or DC), a host USB cable, and connect a video cable to at least one of the displays Channel Inputs.

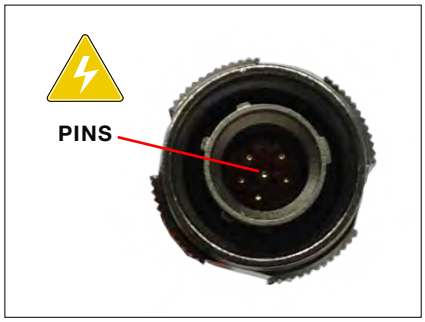
WARNING

Be sure to pay special attention to connector's notch alignment and pin mating.

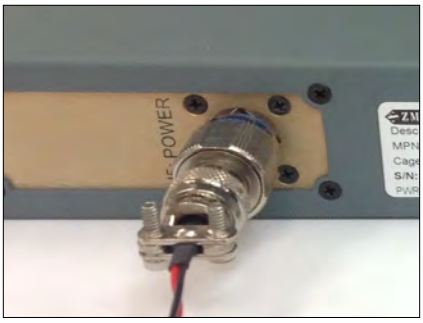
Forcing improper connectors to mate may causedamage to the unit.



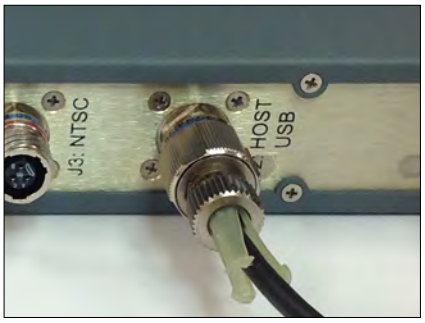
During the Connections process, be sure to take note of the notches on the MIL-C-5015 or MIL-38999 locking connectors.



Attention to pin placement is important as well so that damage is not incurred due to the connection of improper cabling.



1. Align the notches appropriately and securely fasten the power cable to to J5: POWER, as shown in the picture above.



2. Next, connect the USB cable to the J2: HOST USB position as shown above. (Custom configurations that utilize rugged connectors require attention to notch alignment on all connector cables)

3. Next, connect the DVI-I cable to the J1: DVI-I position. This will provide the display with a video signal to channel 1.

4. And lastly, connect the final video cable to the J3 position which will designated with the appropriate video connection type (NTSC or DVI-I)

OPERATION WARNING

This product was designed to operate under current VESA Specifications. If your operating equipment is dated or uses something other than current VESA Specifications, you MUST configure your graphics adapter so that the pixel clock rate **DOES NOT exceed 162 MHz**.

Failure to acknowledge may cause irreparable damage to the unit.

THE GEMINI IS NOW CONNECTED AND READY FOR DEPLOYMENT!

3.0 OPERATIONS

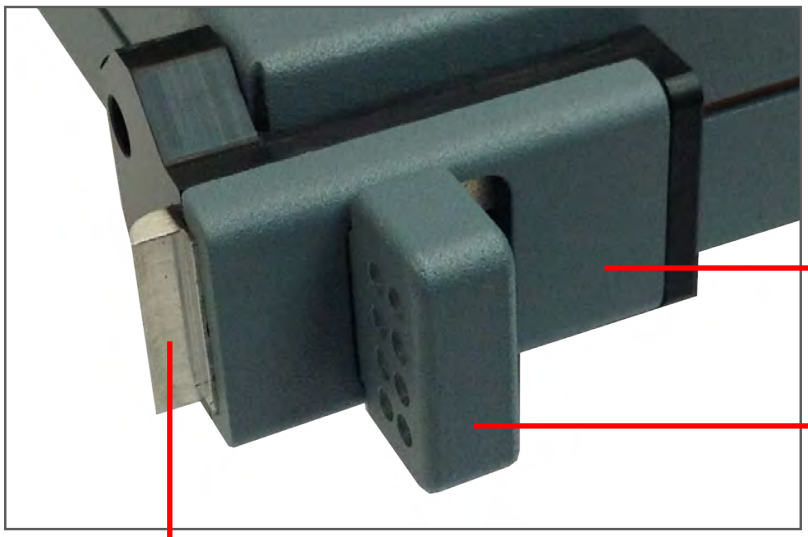
This section will provide information and assistance with the following topics:

- Deploying the Gemini
- Adjusting Monitor Tension
- Display Panel Control Buttons
- Operating the On Screen Display Menus
- Operating the PIP OSD Menus

3.1 DEPLOYING THE GEMINI

The mechanical principle of thes locks is similar to that of spring-loaded dead bolts. Two stainless steel compression springs in each lock press against the bolt so that it will not come loose even under circumstances of substantial force. The catch releases when the release tab is operated, compressing the springs holding the catch in place. Using both hands compress both release tabs on either side to open the display.

3.1.1 GEMINI LOCKS



KEY

#	Lock Part/Function
1	Slide Cover
2	Lock Release Tab
3	Spring-loaded locking catch

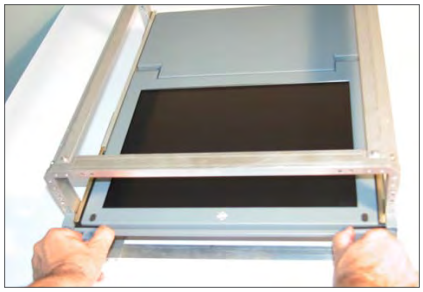
3.1.2 DEPLOYING THE GEMINI DISPLAY

The Gemini 19” Display is a rugged, stowable rack mount display, mounted securely as an operating station and connected to a host server or workstation. Deploying the Gemini is achieved by compressing both release tabs, pulling the display out from the rack and folding it up or down (depending on your Gemini model).

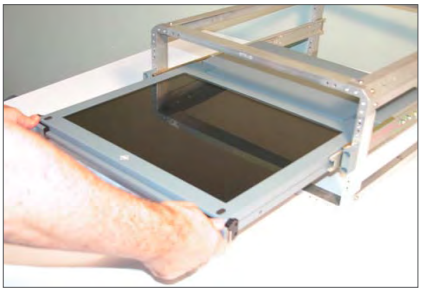
STOWED & SECURED

DEPLOYED

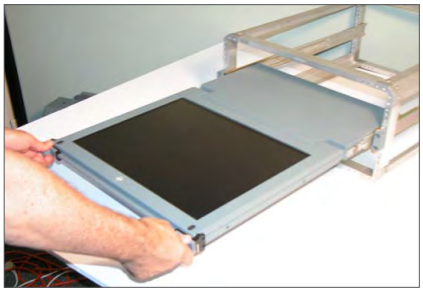
3.1.2 DEPLOYING THE GEMINI EDT (CONTINUED)



1. Begin by facing the Gemini from the operating position. (Gemini would be securely installed at this point) Compress the Locking Release Tabs towards one another,



2. With the Release Tabs compressed, pull the Gemini display toward you until it is extended fully out of the rack.



3. When the Gemini Display is fully extended the locks will catch and securely hold the Gemini in place.

4. Fold the Gemini Display up or down (depending on your model) and adjust to the desired viewing angle.

DEPLOYMENT COMPLETE!!

3.1.3 POWERING UP THE BACKLIGHT

The Gemini display is now ready for operation. With the unit appropriately connected and deployed, press the Standby button (labeled with the power symbol) located on the display's control panel to turn on the display's backlight. The display will illuminate and is ready for use.

When the display is connected to both DVI and NTSC incoming video signals it will automatically recognize DVI-I signal as the Main image. The NTSC image will be presented as the standard PIP channel.

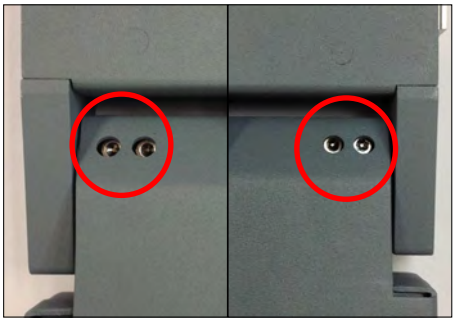
PRESS THE STANDBY BUTTON

3.2 ADJUSTMENTS AND OTHER OPERATIONS

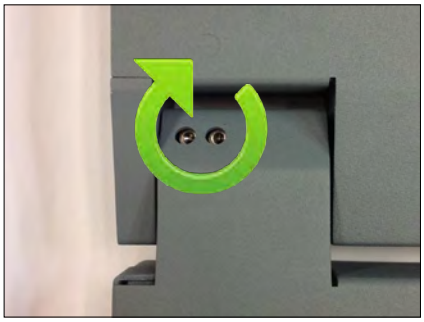
3.2.1 ADJUSTING THE MONITOR TENSION

REQUIRED TOOLS TENSION ADJUSTMENT

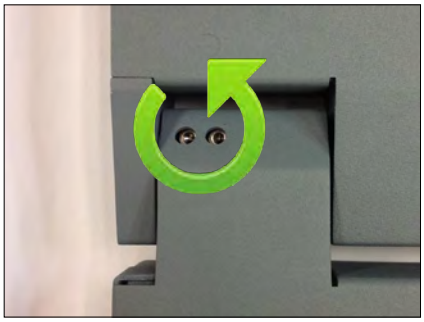
- 9/64 Hex Wrench



1. Using the 9/64 hex wrench, alternate making small adjustments between the two tension screws on each side.



2. Make adjustments clockwise (right) to tighten the hinge, providing more support to the erect display.



3. Make adjustments counter-clockwise (left) to loosen the hinge for more flexible movement in the hinge.

3.3 DISPLAY PANEL CONTROL BUTTONS

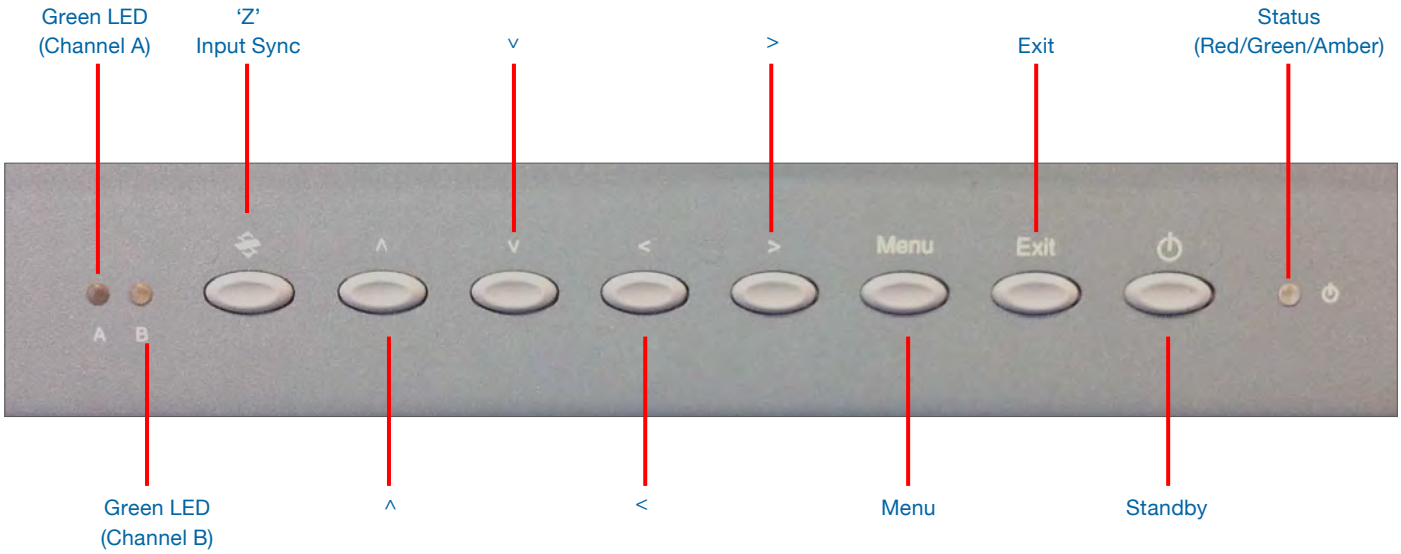
3.3.1 PUSH BUTTON CONTROLS

The Gemini features push-button controls on the lower front of the display housing. These buttons provide easy access to the On-Screen Display (OSD) allowing the user to navigate through menus and adjust image settings.

To setup the display to the desired configuration, use the following controls to fine tune the image on the screen. SoftMenus may also be available to adjust interface settings from a host terminal or computer via the USB Type B communications link.

NOTE

The control buttons allow the user to control backlight operations, to store settings, and to revert to factory settings.



Button Functionality Description Table:

Display Key	'Z' Input Sync	^	v	<	>	Menu	Exit	Power
Function	'Z' front panel button will resync the main display image.	Navigates up to the previous menu item.	Navigates down to the next menu item.	Increases value of the activated menu item.	Decreases value of the Selected Menu Item.	Activates On-Screen Display. Activates/ Deactivates Selected Menu Item. (Changes are saved as they are modified)	Exits from On-Screen Display main menu or returns from submenu to main menu. When the menu is not active, this button will act as channel select(Changes are saved as they are modified)	Press to turn the backlight ON and OFF. (Power Saving Option) **Note**: This is NOT a power switch.

3.3.2 STATUS INDICATORS

Channels LEDs

1 — Green — Video A is selected

2 — Green — Video B is selected

Status LED

Green — Power and Signal Sync

Amber — Power and no Signal

Off — Standby mode / no Power

3.4 ON SCREEN DISPLAY MENUS

3.4.1 MAIN MENU

To access the On-Screen Display main menu, press the menu button on the front of the panel. All display functions are controlled using the Main Menu's subtopics.

These submenus can be accessed for adjustments and information via the display keys on the bottom panel of the display. Refer to the following sections for specific operations and utilities that are provided in each of the submenus.

3.4.2 MAIN SCREEN PICTURE ADJUST

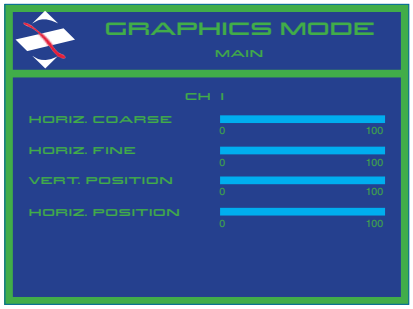
To adjust the display brightness and contrast use the ^ and v buttons to highlight the "Picture Adjust" option. Press the "Menu" button to access the submenu.

Navigate to the desired option using the ^ and v buttons. Use the Menu button to activate the option. (Background color of the slider will change when the option is selected.) Use the ^ and v buttons to increase or decrease the value. Press Menu button again to deactivate the option. This will save any changes.

(NOTE: Contrast is not available for digital signal images and "Main Contrast" option will be grayed out and unavailable.)

3.4.3 MAIN SCREEN GRAPHICS MODE

To make adjustments to the display images positioning, width, or the video sampling clock use the ^ and v buttons to highlight the "Graphics Mode" submenu. Press the "Menu" button to access the "Graphics Mode" submenu.



The "Graphics Mode" menu is used to adjust the positioning of the image. Highlight the desired option using the ^ and v button. Use the Menu button to activate the option. (Background color of the slider will change.) Use the ^ and v buttons to increase and decrease the value of the selected option, respectively. Adjust the image to desired specifications and press menu again when finished to deactivate the option.

The "Horz Coarse" option adjusts the horizontal width of the image.

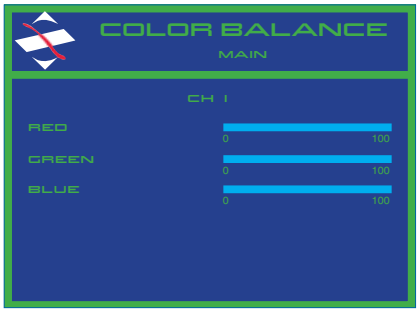
The "Horz Fine" option adjusts the phase of the video sampling clock.

Press "Exit" to return to the Main Menu. The new adjustments will be applied automatically.

(NOTE: The Horz Coarse and Horz Fine options are not applicable for digital channels).

3.4.4 MAIN SCREEN COLOR BALANCE

To adjust the color of the display use the ^ and v buttons to highlight the "Color Balance" submenu. Press the "Menu" button to access the "Color Balance" submenu.

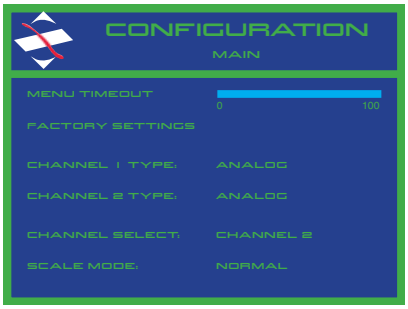


Highlight the color balance submenu using the ^ and v buttons. Use the Menu button to activate the desired option. (Background color of the slider will change.) Use the ^ and v buttons to increase or decrease the value. Press menu again to deactivate the option.

Press "Exit" to return to the Main Menu. The new adjustments will be applied automatically.

(NOTE: Color Balance menu topics Red, Green, and Blue adjustments are available only for analog signal images. Menu topics will be unavailable and grayed out for digital signals)

3.4.5 CONFIGURATION SCREEN



Menu Timeout:
This is the amount of time the menu will remain displayed before timing out and disappearing from the screen. Timeout varies from 4-5 seconds (at 0) up to roughly 4 minutes (at 99). At the 100 setting, the menu will not timeout. It will disappear only when toggled off by the operator.

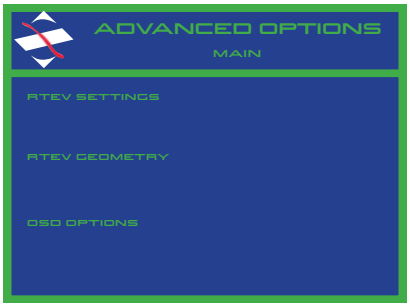
Reset Default Settings:
Resets all Main Menu settings to the factory default settings.

Channel Type:
Channel Type sets the DVI-I Channel to accept either analog or digital input.

Channel Select:
The Gemini Display has two channel options. Highlight "Channel Select" and press Menu button to change channels.

Scale Mode:
There are three scale modes: NORMAL, SCALED ASPECT RATIO (SAR), and NO SCALE. NORMAL mode scales the source image to the full panel size and aspect ratio. SAR mode will keep the aspect ratio of the incoming signal and use the maximum image size possible for the source aspect ratio. NO SCALE mode uses the native source resolution and aspect ratio and displays the image without scaling. SAR and NO SCALE images are centered on the panel with black bars on the sides where no image is present.

3.4.6 ADVANCED OPTIONS SCREEN



These options are available for operation and the future development of Z Microsystems' Real-Time Enhanced Video proprietary video enhancement technology.

RTEV Settings:
Only available on RTEV-embedded displays. Please contact your Z Micro Sales Rep for more information.

RTEV Geometry:
Only available on RTEV-embedded displays. Please contact your Z Micro Sales Rep for more information.

3.4.7 OSD OPTIONS

OSD Options allows you to modify OSD menu settings to adjust the vertical and horizontal position as well as the transparency of the On-Screen Display.

Vert Position:
Vert Position allows the user to change the position of the OSD screen in vertical position (Y-axis).

Horiz Position:
Horiz Position allows the user to change the position of the OSD screen in horizontal position (X-axis).

3.4.8 MAIN SCREEN INFORMATION

WARNING

It is advised to contact Z Microsystems Customer Support if the temperature exceeds 65C.

Use the ^ and v buttons to highlight the "Information" option. Press the "Menu" button to access the "Information" submenu.

Within this submenu, the user can view firmware version, build date, incoming video signals, and display operating temperature.

Temperature displayed is the onboard circuit-board temperature. Temperature variation is common and expected.

3.5 PICTURE IN PICTURE (PIP) MENUS

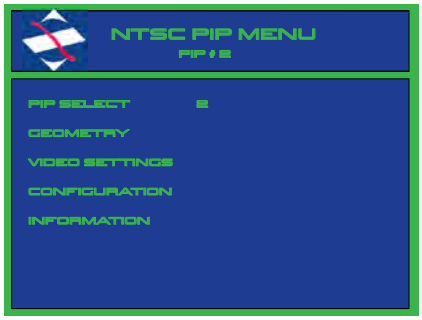
3.5.1 PIP MAIN MENU

The PIP main menu can be accessed through the OSD Main Menu using the same front panel control buttons throughout the OSD. Using the Control Panel buttons, select the PIP Menu. From this menu, there is one option: NTSC PIP menu. Use the directional buttons to select the proper menu and use the 'menu' button to activate/select the chosen menu.

These submenus can be accessed for adjustments and information via the push button display controls on the bottom panel of the display. The following sections detail the adjustments and operations of RGB and Video PIP windows.

NOTE - *For different products, the Video PIP submenu illustrated in the picture to the right may be labeled as DVI-I PIP or NTSC PIP, denoting the connection type for the specific model.

3.5.2 NTSC PIP MENUS



From the NTSC PIP Menu, the user can select and make adjustments to the NTSC PIP channel (2).
PIP Select:
No change is available for NTSC PIP Select.

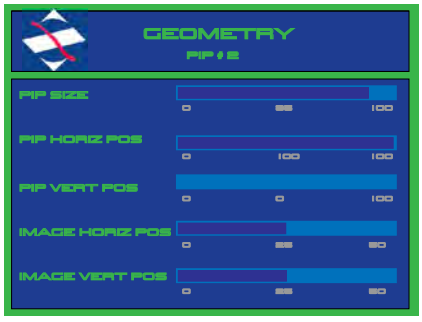
Geometry:
This menu sets size and position of the PIP window, as well as image position within the window.

Video Settings:
This menu offers adjustment levels for contrast, brightness, color, and tint in the selected PIP channel.

Configuration:
Use this menu to enable/disable PIP channel 2, restore factory settings, and turn chroma key use on and off.

Information:
This menu displays PIP firmware info and date, part number, and current resolution status.

NTSC PIP GEOMETRY



The NTSC PIP Geometry menu can be used to adjust the size and positioning of the NTSC PIP window and the picture displayed by the channel.

PIP Size:
This will increase/decrease the overal size of the NTSC PIP window while maintaining current aspect ratio.

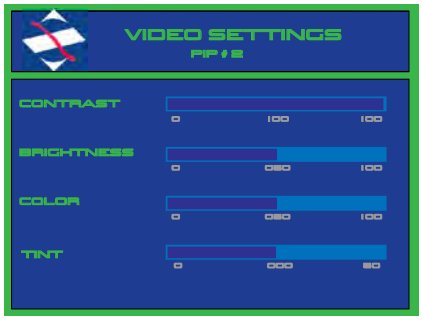
PIP Horiz Position:
This option adjusts the horizontal (X-axis) location of the NTSC PIP window.

PIP Vert Position:
This option adjusts the vertical (Y-axis) location of the NTSC PIP window.

Image Horiz Position:
This option will adjust the horizontal (X-axis) location of the displayed image within the NTSC PIP.

Image Vert Position:
This option will adjust the vertical (Y-axis) location of the displayed image within the PIP window.

NTSC PIP VIDEO SETTINGS



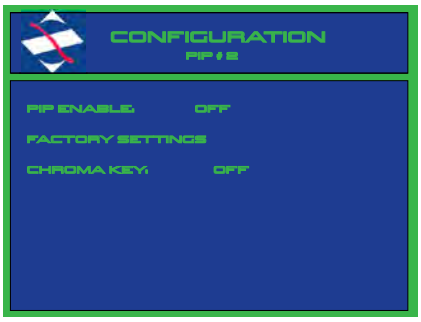
The NTSC PIP Video Settings menu is used to adjust contrast, brightness, color, and tint.
Contrast:
This option will adjust the balance of light and dark colors as well as light brightness of an image.

Brightness:
This 'Brightness' option adjusts the light intensity level of the display.

Color:
This option will adjust the SMPTE color balance of the image to achieve

Tint:
This option will adjust the horizontal (X-axis) location of the displayed image within the PIP window.

NTSC PIP CONFIGURATION



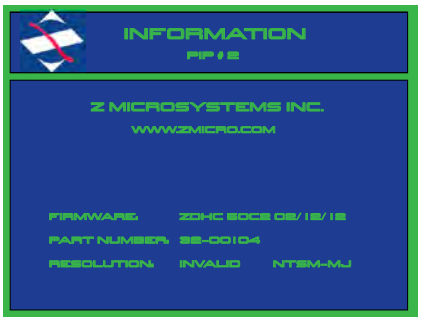
The NTSC PIP Configuration menu allows the user to enable/disable the NTSC PIP channel, default this channel to factory settings, and turn on and off the chroma key functions.

PIP Enable:
This option will turn on and off the selected NTSC PIP channel.

Factory Settings:
This option will reset the PIP channel with default factory settings.

Chroma Key:
This option toggles on and off the Chroma key functions, a built in color coded image overlaying process.

NTSC PIP INFORMATION



Users can find current system firmware version and date information, as well as part number and visual queues for current resolution status in this NTSC PIP Information menu.

4.0 MAINTENANCE

This section will provide information and assistance with the following topics:

- Cleaning the Gemini 19”
- Updates & Upgrades

CAUTION

Do not use benzene, thinner, ammonia or any volatile substance to clean the unit housing. These chemicals may damage the unit.

WARNING

Be sure to turn off the power before you perform any maintenance on the unit.

WARNING

It is recommended that users do not service the Unit. User maintenance is restricted to removal and installation of modules and COTS parts, and to cleaning as explained below.

4.1 CLEANING THE GEMINI 19”

Disconnect the Gemini 19” from the power source before cleaning.

- Clean the surface of the Gemini 19” with a soft, clean cloth, lightly dampened with water or mild detergent.
- Wipe the display and external surfaces until clean. Use a soft lint-free cloth and isopropyl alcohol to clean .

4.2 UPDATES & UPGRADES

Disconnect the Gemini from the power source before performing any operations on the Gemini.

The Gemini platform is designed to be easily stowed and deployed for rack unit measurement and operation. Please contact your local Z Microsystems Sales Representative for questions regarding upgrades, modifications, or rack slide changes. Please note that performing any operations other than those expressly written in Z Microsystems warranty agreement may void the protection plan coverage.

5.0 TROUBLESHOOTING THE GEMINI

This section will provide information and assistance with the following topics:

- Troubleshooting Topics for the Gemini
- Frequently Asked Questions about the Gemini

5.1 TROUBLESHOOTING TOPICS

No Main Display Image

If there is no image displayed on the main screen, a signal will appear that reads "No Sync, Please Check the Cable". If the cable from the computer to the display is secure, determine the color of the standby LED light and follow the appropriate procedure described below.

Black - Cause: If the status LED is black (unlit), the unit is on standby or is not receiving power.

Recovery:
- Press and hold standby button.
- Ensure the power cable is plugged into the source.
- Connect the power cable to a AC outlet. Ensure the AC outlet is active.
- Turn on the display's backlight by pressing the standby button.

Amber - Cause: If the status LED is amber, there is power but no video signal is being received.

Recovery:
- If Video 1 or Video 2 is selected, ensure there is a video signal coming into the selected channel.
- Ensure there is a video signal coming from the computer.
- Be sure the channel type is set correctly for the video signal that is provided by the graphics card. Confirm that the display is setup to analog or digital and verify the outgoing signal from the host computer matches this signal type.

Green - Cause: When the status LED is green, there is both power and a video signal. If there is still no image, follow these recovery steps:

Recovery:
- Ensure the video signal coming from the computer is not a black screen.
- Ensure the Channel Type is selected corresponding to the incoming video signal.
- Ensure the Channel Type under "Configuration" in the OSD menu corresponds to the signal type (i.e. ANALOG or DIGITAL).
- Make sure the right cable is being used for the incoming video signal. DVI-D will not support an ANALOG signal.
- Try a known supported video source resolution and frequency as listed in the Appendix for specifications.
- **If these Recovery criteria have been met and the issue is not resolved there is potentially a hardware failure.**

Display Image has Poor Color or Brightness (Analog Signal Issue)

Possibe Recovery:

Red, Green, and Blue gains can be adjusted from the Color Balance menu topic within the OSD Main Menu. Best quality color is generally achieved when red, green, and blue gains are balanced and all at similar levels. In the Picture Adjust submenu, ensure "Main Brightness" setting is at a sufficient level.

Display Image Has Vertical Bars (Analog Signal Issue)

Possibe Recovery:

If the main image begins to display vertical bars, adjust the "Horz Coarse". From the Main Menu, use the Up and Down buttons to highlight the "Graphics Mode" option. Select the "Graphics Mode" submenu and use the left and right arrow buttons to adjust the screen until the number of bars is reduced. Continue adjusting one step at a time until the bars are no longer visible.

Make sure that the connectors are seated properly on the back of the Gemini display. "Horz Coarse" option is only available for Analog video signals.

Display Image Has Horizontal Bars (Analog Signal Issue)

Possible Recovery:

If the main image begins to display horizontal bars, check that the video input cable is securely attached to the back of the monitor. If this does not resolve the issue there is a chance the connector cable is damaged or defective. Try replacing the DVI cable with a new one to see if the bars disappear.

Display Image Appears Fuzzy / Poor Quality (Analog Signal Issue)

Possible Recovery:

If the main image begins to appear fuzzy or “noisy”, adjust the “Horz Fine” until it is reduced. The “Horz Fine” option adjusts the phase of the video sampling clock. To access the “Horz Fine” submenu from the Main Menu, use the up and down arrow buttons to highlight the “Graphics Mode” option. Press the “Menu” button to access the “Graphics Mode” submenu. The “Horz Fine” and “Horz Coarse” options are only availabe to ANALOG video sources.

If the configuration screen reads ANALOG for the Channel Type and the user is expecting a DIGITAL signal, then the display may not be receiving a digital signal that it can understand. This problem may result from an incompatibility in the graphics card. The source graphics card may not be certified to full DVI-I specification and may be defaulting to an analog signal. One option is to change the configuration in the graphics card to transmit only a DVI-D signal. A second option is to use a DVI-D cable to connect the host system to the display.

Possible Recovery:

In some cases, poor image quality may be caused by a break in the connection. Check for potential breaks by looking for damage or frays to the cable, particularly near connector heads. Also check connector pins to ensure that they are properly aligned to fit into the designated connector jack. If the problem persists, try replacing the video cable.

Possible Recovery:

Some electronics and cellular devices generate electrical/radio interference. The problem may result from close proximity to such a device. Be sure that all items that may cause interference are kept away from the display.

Possible Recovery:

Low signal level is a potential cause for poor image quality. If the previous processes have not resolved the issue, try connecting the display to a video source that provides a clear picture to another display. This will rule out variables and narrow troubleshooting direction.

Possible Recovery:

Make sure that video cables are properly seated on the back of the display panel. A bad seating can have the RGB connectors misaligned. These RGB options are only available for Analog video signals. In the event that these color adjustments have been changed and are out of balance - Reset menu settings to default.

Display Image is Not Centered

If the main image is not centered on the display, access the “Graphics Mode” menu in the OSD. Using the ‘^’ and ‘-’ buttons adjust the ‘Vert’ and ‘Horz’ position until image is appropriately centered.

If the OSD is not positioned in a desired location, an independent menu for OSD options can be found within the “Advanced Options” menu.

Problems with Analog Signal Resolution at 1920x1200x60

Possible Recovery:

This issue is generally resolved by designating the correct signal format (digital or analog) under Channel Type in the Configurations OSD menu. This communicates to the display the correct Extended Display Identification Data (EDID) information. The settings are passed on to the Graphics Card and 1920x1200x60 reduced blankoing is produced by the graphics card.

Be sure that the EDID information is passed to the graphics card and that your graphics card recognizes the Gemini Display as a “ZMicro display.”

No Picture-in-Picture Option Appears on Main Menu

If no PIP menu is available from the Main Menu, the PIP has not been detected by the controller. Recycle power to the unit by disconnecting power and then reconnecting power. If no PIP is detected again when the Main Menu is powered up again, call Z Microsystems’ Customer Support Department for assistance.

No Picture-in-Picture Image

There are a few scenarios which may cause the image on the PIP to be black. To eliminate these concerns, follow the instructions below in the order they are presented:

1. Ensure the PIP is viewing something with contrast and shape and can be easily detected under normal viewing conditions.
2. If the PIP is viewing something with these quality, and should be easily detected, the values associated with Contrast and Color Balance may require adjustment. To ensure the Contrast and Color Balance values are not the cause of the black screen, set the values to the factory default settings.
3. Ensure that the correct channel is chosen for the desired PIP.
4. If the black screen is for the RGB PIP, perform an Auto Adjust in the PIP submenu
5. If no PIP image appears, call Z Microsystems’ Customer Support Department for assistance.

6.0 CUSTOMER SUPPORT

6.1 CONTACT INFORMATION

Technical Support

If you are unable to correct the problem yourself, contact Z Microsystems at:

Phone: (858) 831-7040
Fax: (858) 831-7001
Website: www.zmicro.com
Email: techsupport@zmicro.com

Before calling, please have available as much of the following informationa s possible:

1. Model and serial number for the label on the monitor.
2. Purchase P.O.
3. Description of the problem
4. Computer type and model
5. System configuration (hardware fitted, etc.)
6. System BIOS version number
7. Operating System and version number
8. Display driver version number
9. Video Adapter Type

NOTE

For more help topics, late-breaking news, and information on the latest products and accessories from Z Micro, visit us at our website.
www.zmicro.com

CUSTOMER SERVICE

If possible, stay by the computer. The Z Microsystems Technical Support Representative may wish to go through the problem with you over the phone.

Documentation Assistance

If you are unable to find documentation for your specific product, contact Z Microsystems at:

Phone: (858) 831-7039
Email: ZDoc@zmicro.com

Customer Feedback

We value feedback on our products, their performance, problems found, and welcome all suggestions.

Please send to:

Customer Service
Z Microsystems
9820 Summers Ridge Road
San Diego, CA 92121

(or)

www.zmicro.com

Customer Satisfaction

It is our passion to provide our customers with "Legendary" Products & Services. Your satisfaction is our #1 prioirity. If you have experienced difficulty during any stage of your Z Microsystems product purchase or use, or would just like to make suggestions, please leave us feedback via our online Satisfaction Survey.

Please take a moment to complete our Customer *Satisfaction Survey* at: ***http://zmicro.com/customersurvey.html***

6.2 PARTS REPLACEMENT

If the Z Microsystems Technical Support Engineer determines that the product needs to be replaced, a Customer Service Representative will issue a Return Material Authorization (RMA) number.

An RMA number is required to return a product to Z Microsystems, regardless of the reason for the return.

The Z Microsystems Customer Service Department/RMA Request Form will ask the customer to provide the following information:

- model number of the defective product
- serial number of the defective product
- firmware revision (as detailed in the "Information" section of the Main Menu
- problem with the defective product
- return "ship to" address
- the name and address of the company department to which we will send the invoice (if product is out of warranty or is different from the "ship to" address.
- phone number and e-mail address of contact
- purchase order number (PO #)

You will be given an RMA number and will be asked to send the product to:

Z Microsystems
ATTN.: (RMA#) It is very important to reference the RMA#
9820 Summers Ridge Road
San Diego, CA 92121

Disclaimer

Z Microsystems warrants that every product is free from defects in materials, workmanship, and conforms to Z Microsystems' stringent specifications.

Z Microsystems calculates the expiration of the warranty period from the date the product is shipped. This means that the ship date on your invoice is your product ship date unless Z Microsystems informs you otherwise. During the warranty period, Z Microsystems will provide warranty service under the type of warranty purchased for the product.

Replacement parts will assume the remaining warranty of the parts they replace. If a product does not function as warranted during the warranty period, Z Microsystems will repair or replace the part (with a product that is at minimum, functionally equivalent) without charge.

If the product is transferred to another user, the warranty service is available to that user for the remainder of the warranty period.

Z Microsystems' warranties are voided if the covered product is damaged due to an accident or abuse. The warranty is voided if the product is shipped with insufficient package protection.

Under no circumstances is Z Microsystems liable for any of the following:

1. Third-party claims against you for losses or damages.
2. Loss of, or damage to, your records or data.
3. Economic consequential damages (including lost profits or savings) or incidental damages, even if Z Microsystems is informed.

Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specfic legal rights and you may also have other rights that vary from jurisdiction to jurisdiction.

Warranty does not take effect until full payment is received by Z Microsystems.

7.0 APPENDIX

7.1 TECHNICAL & ENVIRONMENTAL SPECIFICATIONS

Display Specifications

Active Display Size	19 inch, SXGA
Native Resolution	1280 x 1024 (Scaled support up to 1920 x 1200 via on board video controller)
Screen Type	LCD (Integrated LED Driver Board)
Color Palette	8-bit
Contrast Ratio	2000:1
Brightness	500 cd/m^2
Viewing Angle	+/- 89° all angles
Supported Resolutions	640x480x60Hz, 640x480x75Hz, 640x480x85Hz, 1920x1080x60Hz, 1920x1200x60Hz RB, 1600x1200x60Hz, 800x600x60Hz, 800x600x72Hz, 800x600x75Hz, 800x600x85Hz, 1280x768x60Hz, 1280x768x75Hz, 1280x1024x60Hz, 1280x1024x75Hz 1280x1024x85Hz, 1024x768x60Hz, 1024x768x75Hz, 1024x768x85Hz, 1152x864x75Hz, 1440x900x60Hz
Display Options	Optically bonded Anti-Reflective Shield

Physical

Gemini 19”	**Size:**	1.74”H x 18.80”W x 25.50”D
	Weight:	Approximately 19 lbs
Slides	**Length:**	19” rack slides, 20”-24” rack depth

Power Supply

AC Power Supply	Internal 110/220V AC Power Supply - MIL-C-5015 Series Locking Power Connector
DC Power Supply	Internal 18-36V DC Power Supply - MIL-38999 Series Locking Power Connector

Inputs

Video Signal (PIP)	**CH1:** DVI-I w/ Mil-Round Connector (MIL-38999)	**CH2:** DVI-I (or) NTSC w/ RS-170 (MIL-38999) (Analog)
Power	AC/DC MIL-C-5015 series locking connector	
Communication	USB Type B Interface	

Environmental

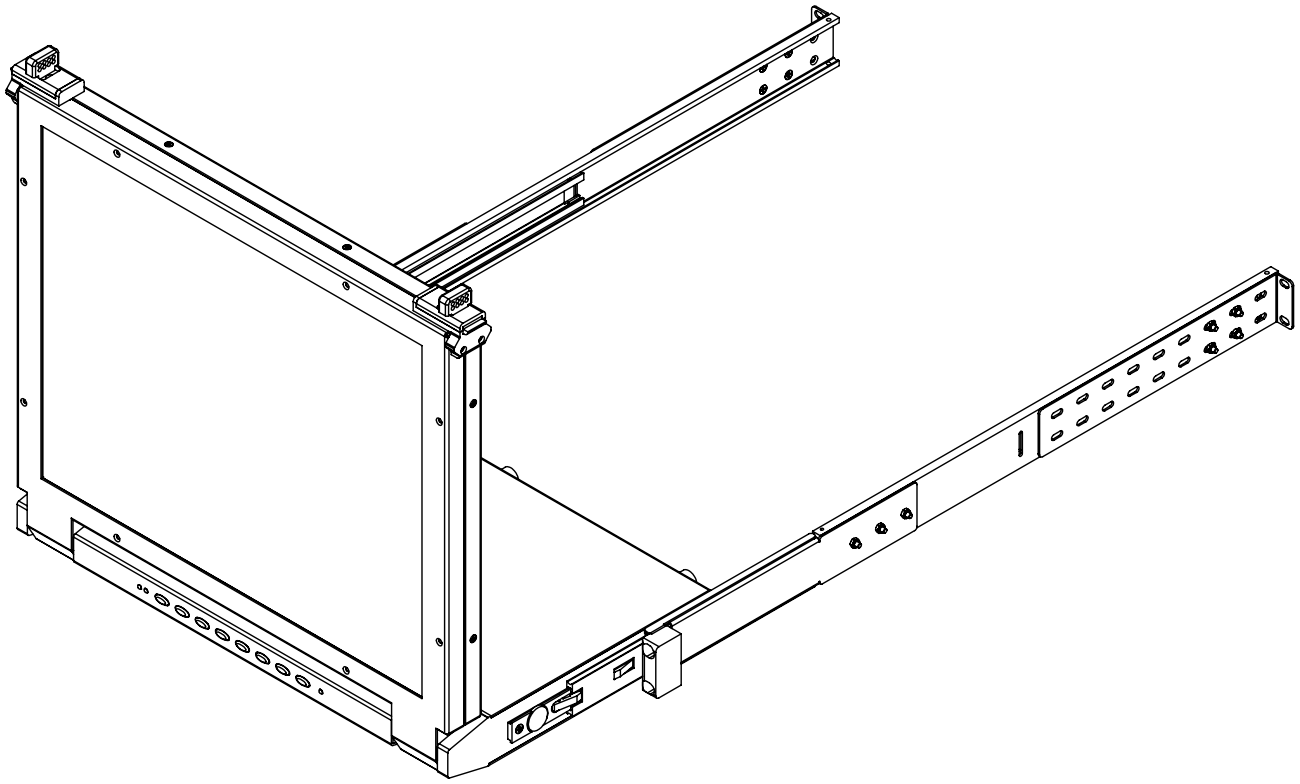
Shock	**MIL-STD-810F Section 516.5**, 40g's 11ms saw-tooth	**MIL-STD-901D** Grade A Hammer Test
Vibration	**DO-160 Section 8 curve B** - Fixed Winged Aircraft and Surface Ships	
Operating Temp.	**MIL-STD-810G**, 0°C to +50°C	
Non-Op Temp	**MIL-STD-810G** -30°C to +70°C	
Non-Op Altitude	Up to 40,000 ft	
Operating Altitude	Up to 10,000 ft	
Operating Humidity	**MIL-STD-810G Method 507.5**, Procedure II, 240 hr duration (10 cycles)	
Fungus	Non-Nutrients/Contaminant	
Crash Safety	**MIL-STD-810G Method 516.5**	
Explosive Atmosphere	**MIL-STD-810G Method 511.5**	
EMI	**MIL-STD-461F** for CS101, CS114 Curve 3, CS115, CS116, RE102, RS102, RS103, CE102	

Reliability

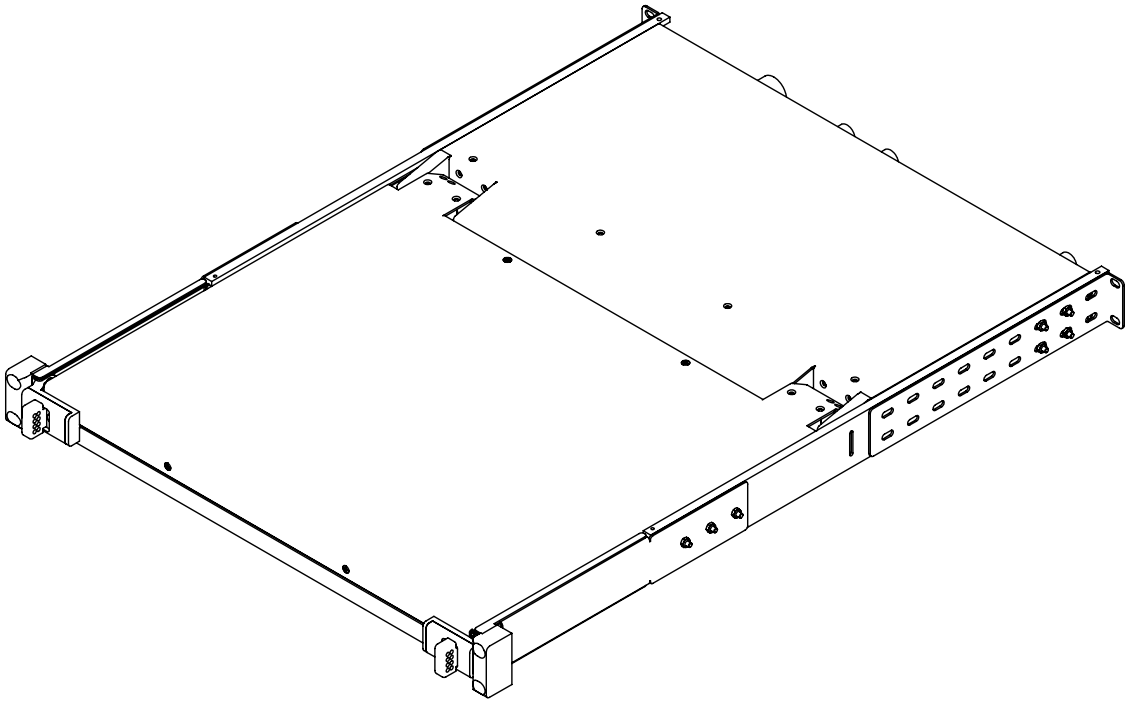
Operating Life	10 years
Maintainability	<20 minutes at the replaceable unit (LRU) level

Regulatory/Quality	IPC / ISO 9001:2008 and applicable section of MIL-HDBK-454
MIL-SPEC	Improved environmental limitations for military applications can be achieved with additional enhancement options.

7.2 MECHANICAL OUTLINES

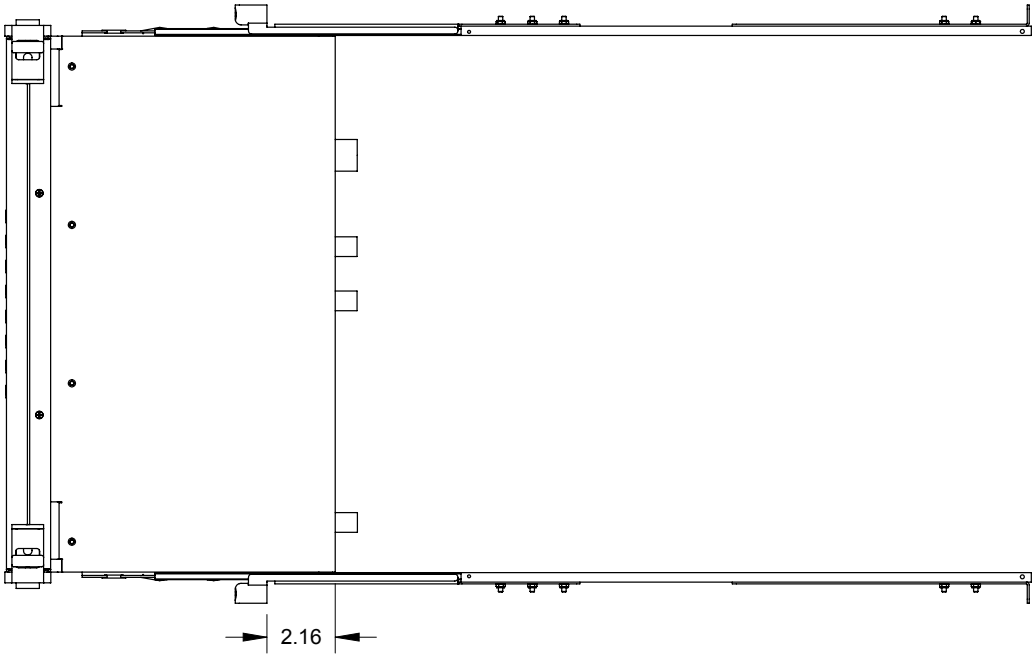


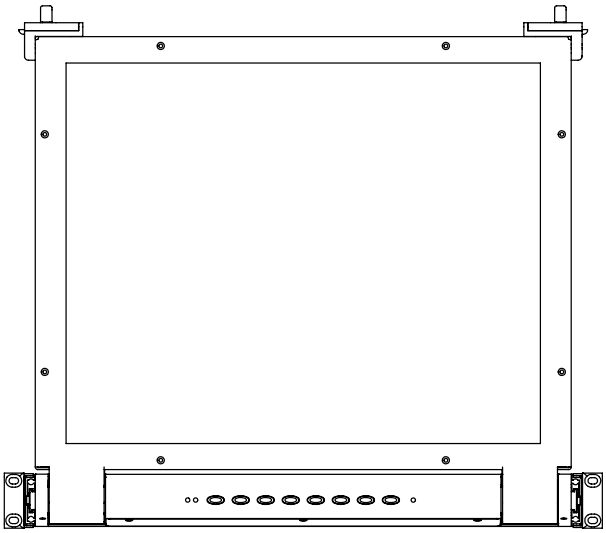
ISOMETRIC VIEW
OPEN

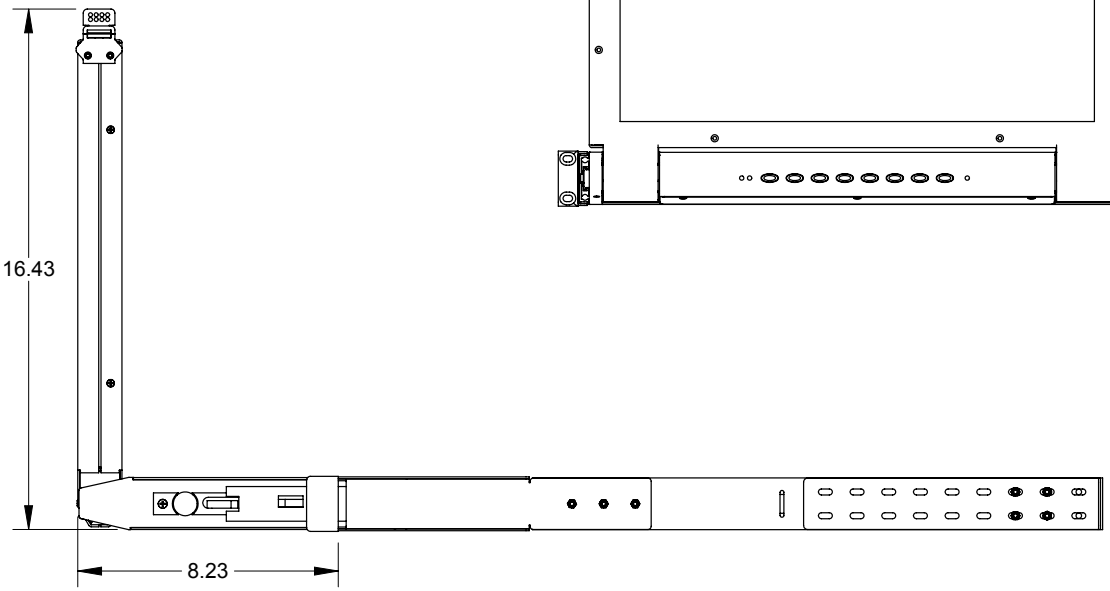


ISOMETRIC VIEW
CLOSED

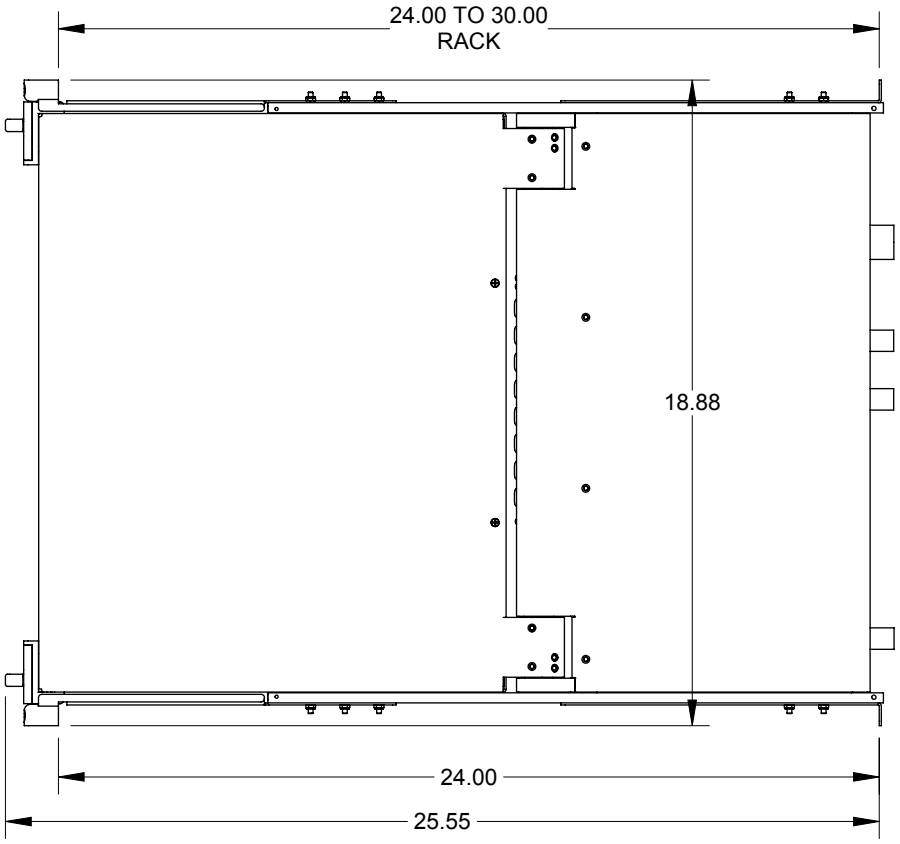
MECHANICAL OUTLINES (CONTINUED...)



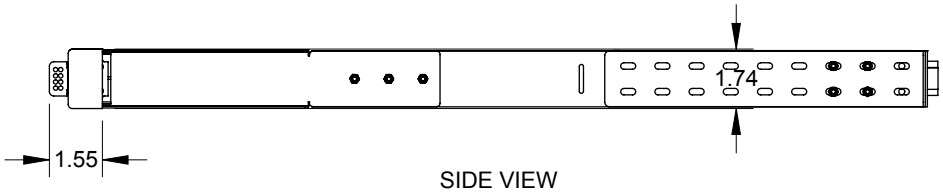




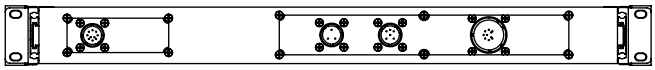
MECHANICAL OUTLINES (CONTINUED...)



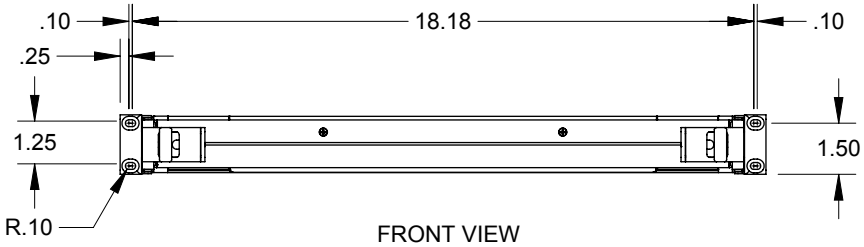
TOP VIEW



SIDE VIEW



BACK VIEW



FRONT VIEW

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